

## REMARKS

Claims 3-16, 27, and 28 were pending, all of which were rejected. Claim 27 has been cancelled and Claims 3, 7, 11-13, and 28 have been amended to include “zero order reflected radiation” as described, e.g., at page 15, lines 25-32, page 5, lines 30-31, and Fig. 1. No new matter has been added. This amendment makes explicit what was already implicit in the claim, i.e., the reflected light was reflected normally incident light, and thus Applicants submit that the amendment does not narrow the claims.

### Claim Rejections – 35 U.S.C. §103

Claims 3, 5, 9, 10, 13, and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rosencwaig et al. (US 5,596,406) in view of Reiley (5,519,493) and Scheiner et al. (6,100,985). Reconsideration is requested.

Amended independent Claim 3 recites a single “polarizing element” through which the radiation passes through “toward said sample” and through which the “zero order reflected radiation” from the sample passes and a spectrograph that detects the intensity of spectral components of said zero order reflected radiation”.

The Examiner cited Reiley as teaching “reflected radiation passing through the polarizing element (Fig. 1, #10, and Abstract). In paragraph 16 of the current Office Action, the Examiner disagreed with Applicant’s previous argument regarding Reiley stating “[t]he radiation passes through the polarization state generator twice, thus passing through the same polarizing element. Therefore Reiley does disclose or suggest such an element.” Applicant respectfully requests reconsideration.

Reiley teaches the use of a polarization state generator 11 and a separate polarization state analyzer 10. Reiley describes the operation of the device with two separate elements stating the “light from the light source 14 … passes through the polarizing state generator 11” toward the sample (col. 5, lines 59-63) and the “light then is scattered off the sample” and “then passes through polarization state analyzer 10” (col. 5, line 66 to col. 6, line 2). After the light passes through the polarization state analyzer 10, Reiley states that the light “is focused on to photodetector 15....” Col. 6, lines 5-6.

Reiley repeatedly states that a separate polarization state generator and polarization state analyzer are used. For example, Reiley states “in this invention, the polarization state analyzer and polarization state generator are mounted on the same rotary mount.” Col. 3,

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lines 57-60, and see col. 4, lines 7-9, col. 4, lines 25-30, col. 6, lines 62-65. Moreover, Reiley states “[o]nly by using a polarization state analyzer with a different polarization state generator can polarization properties be accurately and fully characterized.” Col. 4, lines 50-52. Reiley goes on to state that “[t]his invention provides significant improvement over prior art because of the synergism afforded by passing the light through the two different apertures on the same mount--light leaving the device passes through the polarization state generator; light entering the device passes through the polarization state analyzer.” Col. 4, lines 52-57.

Reiley does not teach or suggest that normally incident light passes through the same polarizing element that the reflected zero order light passes through. Accordingly, Reiley does not teach “a polarizing element, said radiation passing through said polarizing element toward said sample … the zero order reflected radiation passing through said polarizing element” as recited in Claim 3. Accordingly, taken separately or together, Rosencwaig and Reiley fail to disclose all the elements in Claim 3. Moreover, Scheiner does not make up for the deficiencies of Rosencwaig and Reiley.

Independent Claim 13 recites “passing broadband radiation through a polarizing element” and “analyzing the zero order reflected radiation with said polarizing element”. As discussed above, Reiley fails to teach or suggest this.

The Examiner stated that it would have been obvious to “modify the apparatus of Rosencwaig with the polarizing element of Reiley.” Applicant disagrees and requests reconsideration.

Applicants submit that it is not obvious how Rosencwaig could be modified with the polarizing elements 10 and 11 of Reiley. For example, Rosencwaig teaches the use of a generator 122 and an analyzer 132 in Fig. 2. Replacing either generator or analyzer 132 in Rosencwaig with the two polarizing elements 10 and 11 from Reiley would not result in a working device, i.e., the light in Rosencwaig does not travel in both directions through either generator 122 or analyzer 132. To use Reiley’s polarizing element 10 and 11 in another location in the device disclosed in Rosencwaig would require a redesign that is neither taught nor suggested or Rosencwaig or Reiley. For example, Rosencwaig uses a lens 40 that focuses the light onto the sample 36 and “has a high numerical aperture … [that] creates a large spread of angles of incidence on the surface of the sample 36.” Col. 6, lines 51-53 and 57-60. Reiley does not include a lens that focuses the light on a sample. In fact, Reiley is directed to a “remote” sample and thus, focusing light on the sample is not performed. See, title and col.

4, lines 43-45, col. 7, lines 36-39. Applicant submits that Rosencwaig's use of a high numerical aperture lens 40, which creates a large spread of angles, is incompatible with the polarizing elements 10 and 11 of Reiley.

Accordingly, Applicants submit that the combination of Rosencwaig with Reiley is based on an impermissible hindsight analysis.

Accordingly, Applicants submit that for at least the reasons stated above, independent Claims 3 and 13 are allowable. Claims 5, 9 and 10 depend from Claim 3 and Claim 15 depends from Claim 13, and thus, Claims 5, 9, 10, and 15 are allowable for at least the same reasons as Claims 3 and 13. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over Rosencwaig in view of Reiley and Scheiner and further in view of Solomon et al. (5,900,633) ("Solomon"). Reconsideration is respectfully requested.

Claim 4 is dependent on Claim 3 and is allowable for at least the same reasons. Solomon does not remedy the defects of the cited art.

Accordingly, Applicants respectfully submit that Claim 4 is allowable and request reconsideration and withdrawal of the above rejection.

Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over Rosencwaig in view of Reiley and Scheiner and further in view of Xu et al. (5,900,633) ("the '633").

Claim 6 depends from Claim 3, and thus is allowable for at least the same reasons as Claim 3. The '633 does not remedy the defects of the cited art discussed above.

Accordingly, Applicants respectfully submit that Claim 6 is allowable and request reconsideration and withdrawal of the above rejection.

Claims 7 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rosencwaig in view of Reiley and Scheiner and further in view of Motulsky ("Analyzing Data with GraphPad Prism") ("Motulsky"). Reconsideration is respectfully requested.

Similar to Claim 3, Claim 7 recites a single "polarizing element" through which the radiation passes through "toward said sample" and through which the "zero order reflected radiation" from the sample passes. As discussed above, Reiley fails to disclose or suggest

such an element and Scheiner does not make up for this deficiency. Moreover, Motulsky fails to make up for this deficiency. Accordingly, Claim 7 is patentable for at least the same reasons as Claim 3.

Additionally, Applicants point out that Motulsky merely discloses a well known mathematical technique of nonlinear regression. Motulsky does not disclose or suggest “curve fitting said sample reflectance for said plurality of wavelengths and said plurality of orientations with  $R(\Theta) = A \cdot \cos^4(\phi - \Theta) + B \cdot \sin^4(\phi - \Theta) + C \cdot \cos^2(\phi - \Theta) \cdot \sin^2(\phi - \Theta)$ ” as recited in Claim 7.

The Examiner agreed that Motulsky does not disclose what is claimed in Claim 7, but stated that “Motulsky nevertheless suggests it by its teaching of using non-linear regression with sum-of squares. Therefore, there is at least a suggestion of curve fitting with

$R(\Theta) = A \cdot \cos^4(\phi - \Theta) + B \cdot \sin^4(\phi - \Theta) + C \cdot \cos^2(\phi - \Theta) \cdot \sin^2(\phi - \Theta)$  in Motulsky.”

Applicant disagrees and requests reconsideration. Claim 7 recites that “ $R(\Theta)$  is the measured reflectance at one wavelength,  $\Theta$  is the polarization orientation of said polarizing element with respect to said diffracting structure, and  $\phi$ , A, B, and C, measurable, to obtain said spectral information.” These quantities are not taught or suggested in Motulsky, nor are they taught or suggested in Rosencwaig, Reiley and Scheiner. Accordingly, as none of the cited references include such quantities, the function

“ $R(\Theta) = A \cdot \cos^4(\phi - \Theta) + B \cdot \sin^4(\phi - \Theta) + C \cdot \cos^2(\phi - \Theta) \cdot \sin^2(\phi - \Theta)$ ” is not taught or suggested.

Accordingly, Claim 7 is patentable over the cited art for at least the reasons discussed above. Claim 8 depends from Claim 7 and is therefore patentable for at least the same reasons.

Claims 11, 12, and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rosencwaig in view of Reiley and Scheiner and Shibata et al. (6,690,469) (“Shibata”). Reconsideration is respectfully requested.

Similar to Claim 3, Claims 11 and 12 recite a single “polarizing element” through which the radiation passes through “toward said sample” and through which the “zero order reflected radiation” from the sample passes. As discussed above, Reiley fails to disclose or suggest such an element and neither Scheiner nor Shibata make up for this deficiency. Thus, Claims 11 and 12 are patentable over the cited art for at least the reasons discussed above.

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Claim 16 depends from Claim 13 and is patentable for at least the same reasons as Claim 13.

Claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over Rosencwaig in view of Reiley and Scheiner and further in view of Xu et al. (6,483,580) ("the '580).

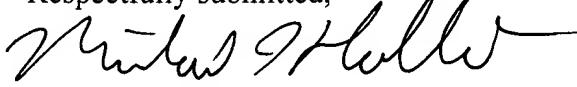
Claim 14 depends from Claim 13, and thus is allowable for at least the same reasons as Claim 13. The '580 does not remedy the defects of the cited art discussed above. Accordingly, Applicants respectfully submit that Claim 14 is allowable and request reconsideration and withdrawal of the above rejection.

Claim 27 was rejected under 35 U.S.C. §103(a) as being unpatentable over Rosencwaig in view of Shibata. Claim 28 was rejected under 35 U.S.C. §103(a) as being unpatentable over Rosencwaig in view of Shibata and further in view of Reiley. Reconsideration is respectfully requested. Claim 28 has been amended to incorporate the subject matter of independent Claim 27. Thus, Claim 28 has not been narrowed. Independent Claim 28 recites "a single "polarizing element" through which the radiation passes through "toward said sample" and through which the "zero order reflected radiation" from the sample passes. As discussed above Rosencwaig, Reiley and Shibata alone or in combination fail to disclose or suggest this. Accordingly, Claim 28 is allowable over the cited references.

Claims 3, 7, 11-13, and 28 have been amended and Claim 27 has been cancelled leaving Claims 3-16, and 28 pending. For the above reasons, Applicants respectfully request allowance of Claims 3-16, and 28. Should the Examiner have any questions concerning this response, the Examiner is invited to call the undersigned at (408) 982-8202.

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